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(71) Applicant(s)
PPE Limited

(Incorporated in the United Kingdom)

Unit 7, West Road, Templefields, HARLOW, Essex,
CM20 2BU, United Kingdom

(72) Inventor(s)
Nigel Parker

(74) Agent and/or Address for Service
Venner Shipley & Co
20 Little Britain, LONDON, EC1A 7DH,
United Kingdom

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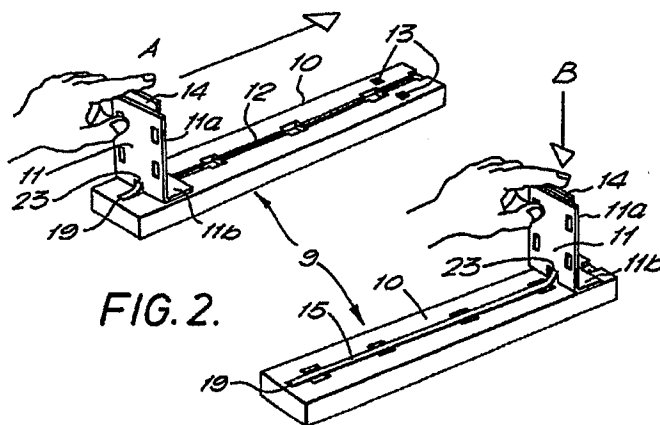
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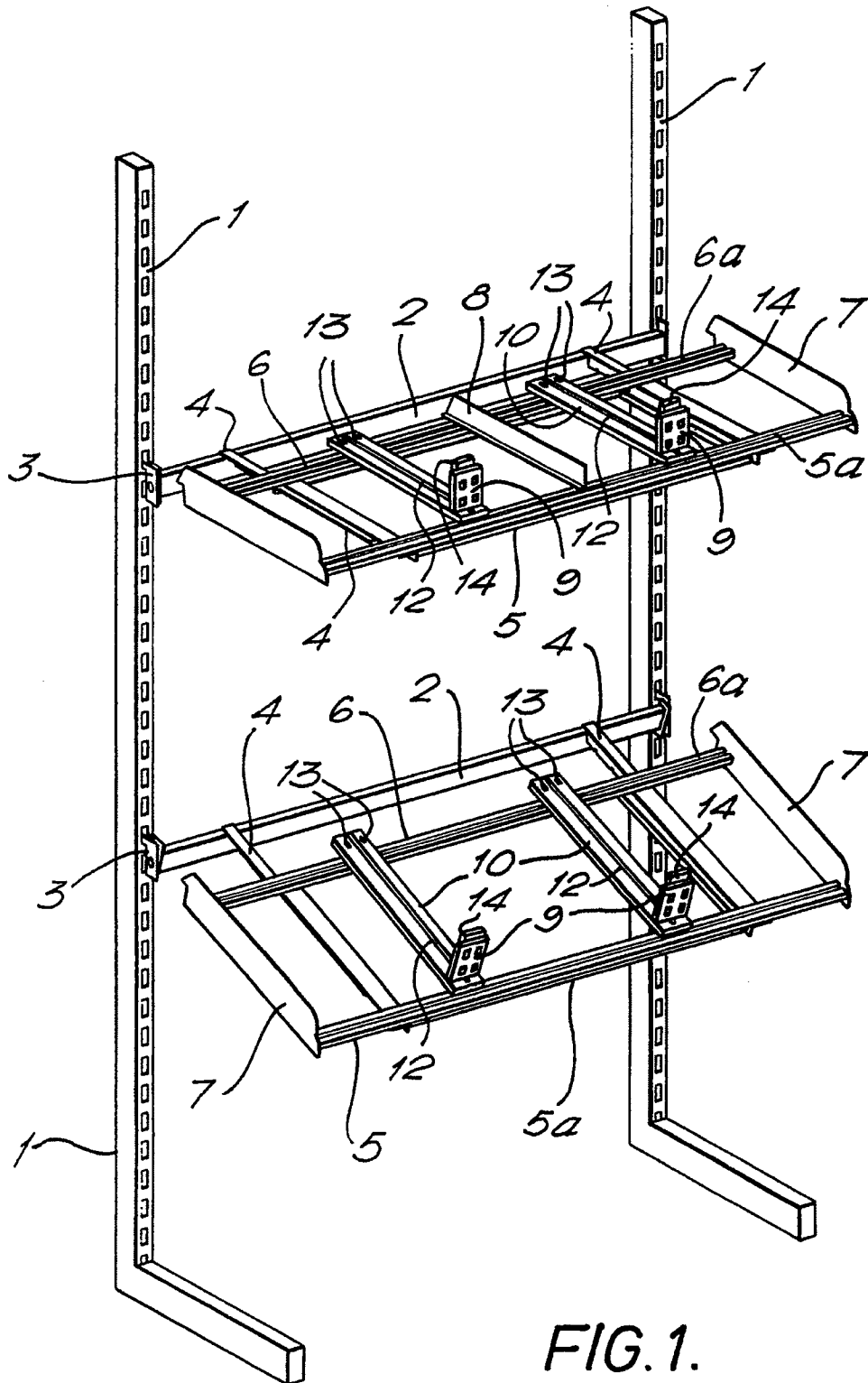
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GB 1088684 A US 5111942 A

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UK CL (Edition N) B8U UF UGB UL
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(54) Latch for pusher on a merchandising shelf

(57) A product pusher assembly for use on a merchandising shelf comprises a base 10 in which a product pusher 11 is slidably mounted for movement in a slot 12 and is biased by spring 15. The product pusher can be held in the rear position on depression of latching member 14 so that hooks 17 engage in holes 13. Pressure applied to the product pusher 11 in a direction towards the rear of the base 10 releases the engagement of the hook 17 with the holes 13 and the product pusher 11 is returned to the front of the base 10 under the action of the spring 15.





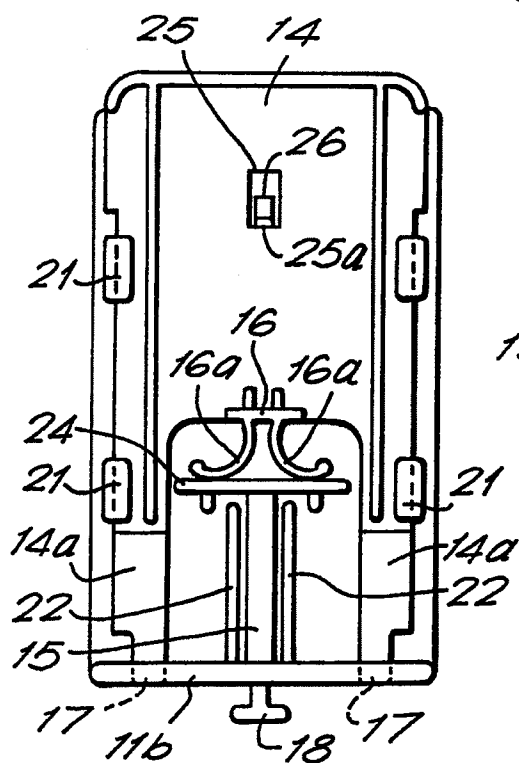
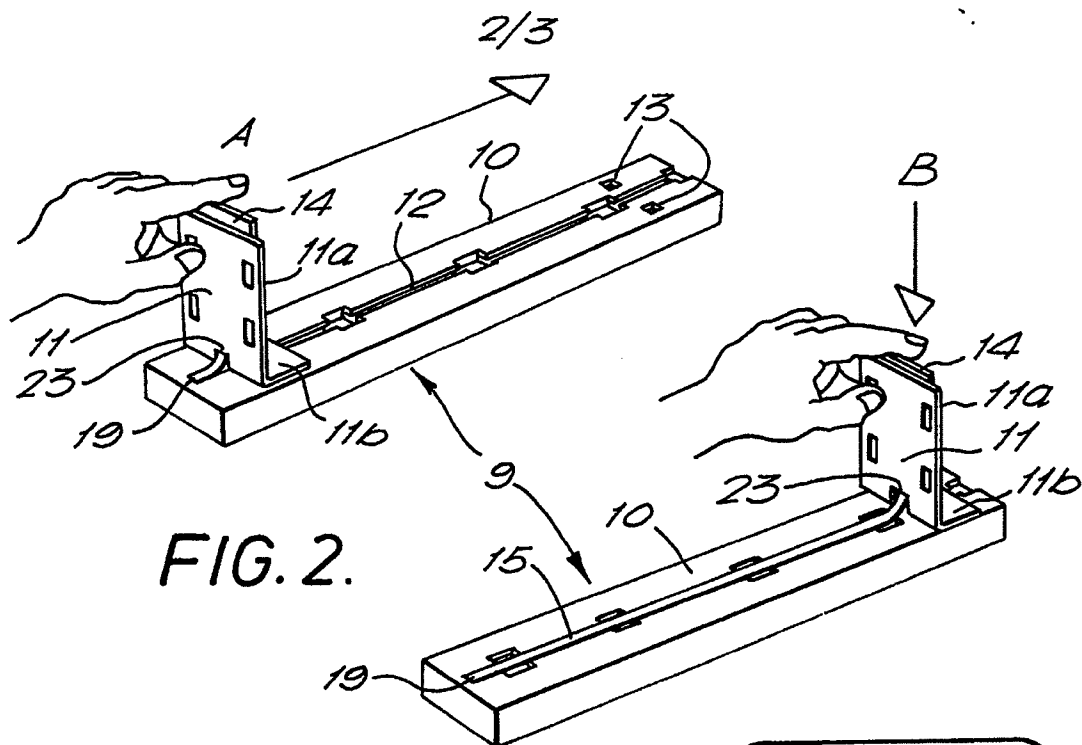
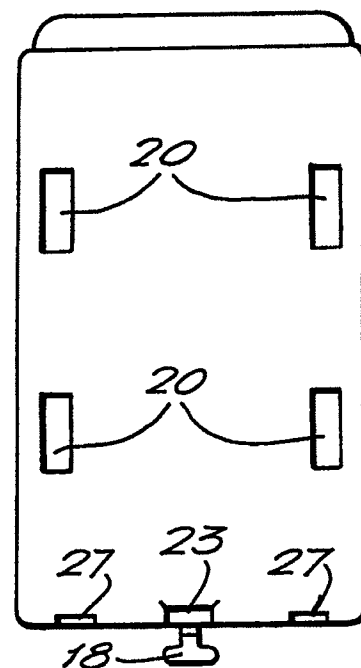
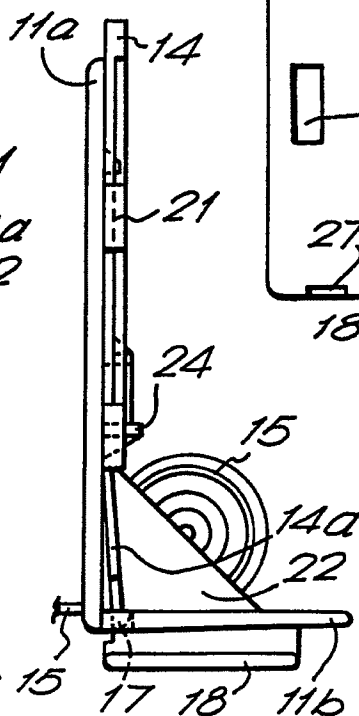


FIG. 3B.



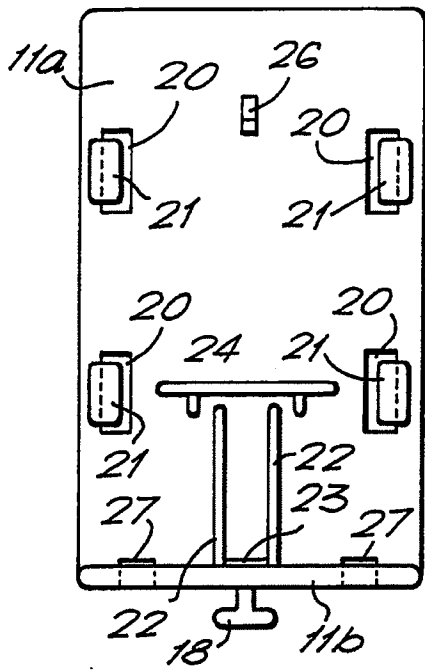


FIG. 4A.

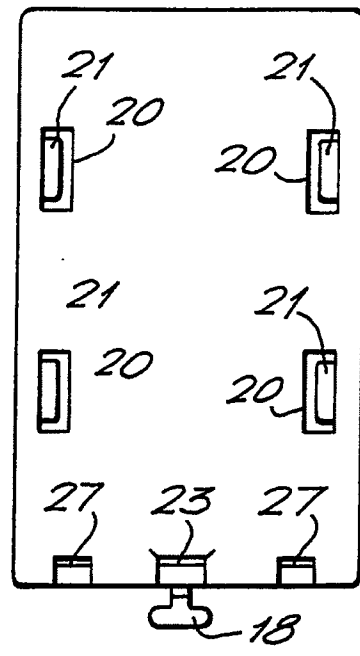


FIG. 4C.

FIG. 4B.

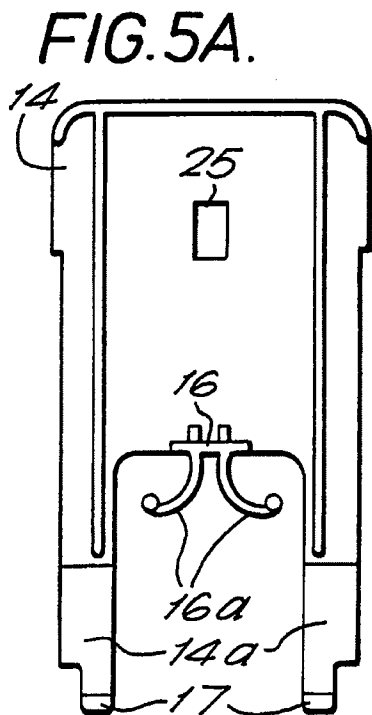
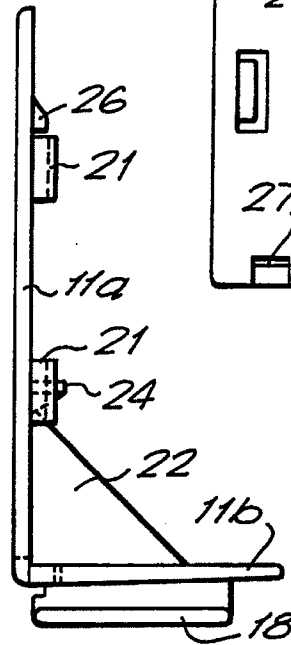


FIG. 5A.

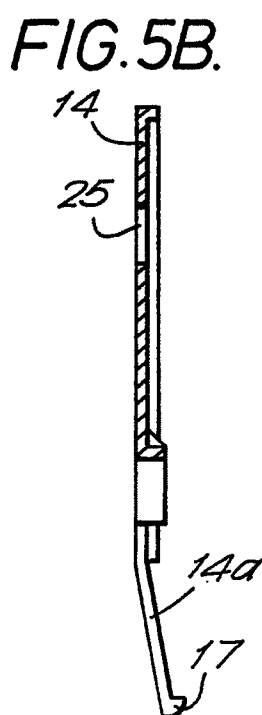


FIG. 5B.

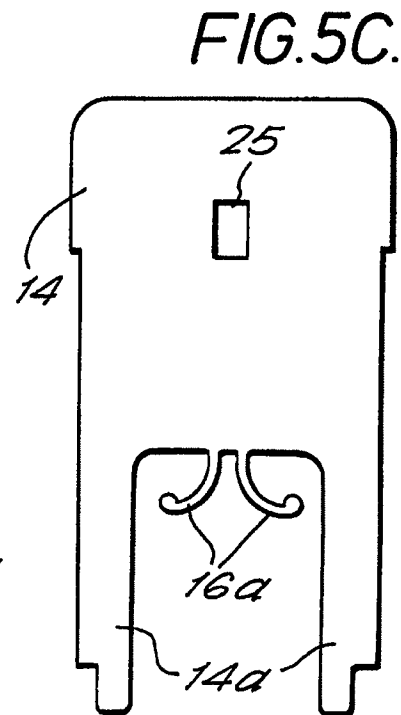


FIG. 5C.

SHELF PRODUCT PUSHER

This invention relates to a pusher assembly for use with a merchandising display stand to automatically push products
5 displayed on a shelf thereof forwardly towards the front of the shelf. The pusher assembly is primarily intended for use in shelving systems located for instance in retail shops and similar outlets but it can be incorporated in shelving systems for use elsewhere.

10

A major problem with any shelf system used to retail merchandise is that the product available for sale becomes less and less visible as more product is sold and removed from the front of the shelf. This means that the shelves
15 have to be constantly restocked by store staff known as "merchandisers" who move the older product from the rear to the front of the shelves and place new products at the rear thereof. This is very labouring intensive and furthermore, the product is not offered for sale in the most appealing
20 way as the customer has to look under the shelf to see what product is available if the shelf is not fully stocked. This is a particular problem on the lower shelves near ground level.

25 This problem has been overcome in the prior art by using spring biasing mechanisms to urge the product array on the

shelf forwardly. However, to load the shelf with products, the merchandiser has to slide the spring loaded pusher to the back of the shelf and hold it there against the action of the biasing spring while the product on the shelf is
5 replenished. Once the shelf is refilled, then the merchandiser can release his or her hold on the pusher which can then move forwardly into engagement with the product array to bias it towards the front of the shelf. This means that loading the shelf is a two handed operation for the
10 merchandiser which is inconvenient and sometimes extremely difficult, for instance when there is a limited access to the rear of the shelf due to a small amount of vertical space between adjacent shelves.

15 It is an object of the present invention therefor to provide a pusher assembly for a merchandising system which the product pusher can be readily pushed to the rear of the shelf, temporarily retained there while the shelf is being loaded but releasable from the front area of the shelf when
20 loading is complete.

According to the invention there is provided an assembly for fitting to the shelf of a merchandising display stand to push products displayed thereon to the front of the shelf
25 comprising a base or track mountable on the shelf in which a product pusher is slidably mounted so as to be movable

along the base against the action of resilient biasing means, the product pusher and base also having cooperating latching means operable when activated to hold and retain the product pusher in position adjacent the rear of the base
5 but releasable automatically when pressure is applied to the product pusher in a direction against the action of the resilient biasing means.

Preferably the latching means comprises a hook member
10 mounted on the pusher and engageable with a hole in the base, the hook member being normally biased into a rest position out of engagement with the corresponding hole in the base but movable against a biasing force into a latched
15 position in engagement with the base, the arrangement being such that the latch disengages when a rearward pressure is applied to the product pusher.

The advantage of the assembly of the present invention is that there is no need for a person loading the shelf to have
20 to reach to the back of the fully loaded shelf to release the latching mechanism (difficult if the shelves are vertically spaced very close together so providing limited access) as it can be released from the front of the shelf by simply applying a rearward pressure to the foremost product
25 on the shelf. This releases the latching means which returns to its rest position out of engagement with the

track or base and the pusher then moves forwardly into engagement with the rearmost product to push the whole linear array of product forwardly towards the shelf front.

- 5 In a preferred embodiment, the latching member is slidably mounted on the pusher and is provided with spring means which act against a fixed stop on the pusher, the latching member being slidable against the action of the spring means. The spring means can take any convenient form such
10 as a coil or leaf spring. However, in the preferred embodiment, the spring means comprises at least one resilient finger which cooperates with the fixed stop on the pusher. Suitably the latching member is made of a plastics material and the or each resilient finger is molded
15 integrally therewith.

Preferably the latching member has a part which protrudes beyond the edge of the product pusher so that the latching member can be depressed against the action of the spring
20 means to engage with the base and retain the product pusher adjacent the rear of the base.

The biasing means for the product pusher conveniently comprises a coiled flat spring, the free end of which is
25 attached to the base adjacent the front thereof and the coiled remainder being mounted on the rear face of the

product pusher.

Preferably the latching member includes two hook members which engage in respective holes in the base.

5

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

10 Figure 1 is a perspective view of a merchandising display stand incorporating a pusher assembly of the present invention;

Figure 2 is a perspective view of one of the pusher assemblies shown in Figure 1 and illustrates how it can be

15 moved from a rest position A to a loading position B;

Figures 3A-3C are respectively rear, side and front views of the pusher assembly shown in Figure 2;

Figures 4A-4C are respectively rear, side and front views of the pusher body of the pusher assembly shown in Figures 2

20 and 3; and

Figures 5A-5C are respectively rear, side and front views of the slider which forms part of the pusher assembly shown in Figures 2 and 3.

25 Referring to the drawings there is shown in Figure 1 a display stand comprising a pair of known slotted uprights 1

to which a pair of shelf assemblies are mounted by means of crossbars 2 to which the shelf assemblies are attached. Each crossbar 2 includes a mounting bracket 3 at each end provided with a hook which engages in one of the apertures 5 in each upright 1 to secure the cross member 2 to the uprights 1. The mounting brackets 3 can also include means permitting the angular orientation of each shelf to be varied.

10 Each shelf assembly comprises a pair of shelf support arms 4 secured to the cross member 2. These arms 4 support cross members 5,6 which extend transversely relative thereto and parallel to the crossbar 2. Each cross member 5,6 has a slot 5a,6a extending along it for reasons which will be
15 explained hereafter. End plates 7 are attached to the cross members 5,6. Shelf dividers 8 (only one is illustrated although any number could be used) are attached to the cross members 5,6 by suitable means which engage with the slots 5a,6a. Accordingly, the or each shelf divider 8 can be slid
20 along the length of the cross members 5,6 to provide compartments therebetween of any desired width.

In the arrangement shown in Figure 1, the upper shelf assembly is divided into two compartments by means of the
25 divider 8 and each compartment has a product pusher assembly 9 of the present invention mounted therein on the cross

members 5,6. As can be seen from Figure 2, each product
pusher assembly 9 comprises a base or track 10 on which a
product pusher 11 is slidably mounted. The underside of the
base or track 10 is formed with suitable known formations
5 which are received in the slots 5a,6a running along the
length of the cross rails 5,6. Thus, each product pusher
assembly 9 is securely mounted to the cross rails 5,6 but is
slidable therealong into any required position.

10 Referring now to Figure 2 in more detail, it can be seen
that each pusher assembly 9 comprises the base 10 having a
slot 12 extending along its length. The product pusher 11
is L-shaped and comprises an upright portion 11a and a
horizontal portion 11b which is mounted by means of the
15 guide 18 (see Figure 3) for sliding movement along the slot
12 from a rest position A located at the front of the base
or track 10 to its cocked or loading position B adjacent the
rear of the base 10 where a pair of apertures 13 are
provided. A flat coiled spring 15 is mounted on the pusher
20 11 between a pair of outwardly projecting flanges 22 with
its free end 19 anchored in the base 10 adjacent the front
edge thereof, the spring passing through an aperture 23 in
the product pusher 11. A latching member 14 is slidably
mounted on the product pusher 11 and depressible relative
25 thereto against a biasing force.

In the embodiment illustrated in Figure 3, the biasing force comprises a spring member 16 having a pair of resilient legs 16a. The base of the latching member 14 is provided with a pair of legs 14a having a hook 17 at the remote end of each leg. Each hook 17 engages in a respective aperture 13 at the rear of the base 10. As can be seen more clearly in Figure 3A, the biasing means 16 with its resilient arms 16a is molded integrally with the latching member 14 and engages with an abutment 24 molded on the rear face of the pusher 11. Thus, when the latching member 14 is depressed, it compresses the legs 16a of biasing means 16. It is therefore normally biased into a rest position where each hook 17 at the remote end of each leg 14a is positioned above the horizontally extending portion 11b of the pusher 11.

As can be seen clearly from Figure 2, in use a user pushes the product pusher 11 towards the rear of the track 10, the pusher 11 being guided along the track 10 by means of the guide 18 located in the slot 12. When the pusher 11 reaches the rear of the track 10, the user downwardly depresses the portion of the latching member 14 which projects above the top edge of the pusher 11 thereby lowering the hooks 17 into the apertures 13 in the base 10. Because the biasing force of the spring 15 is drawing the pusher 11 towards the front of the track 10, the hooks 17 engage with the side walls of

the apertures 13 to retain the pusher assembly 11 in a "cocked" position whereby the shelf is ready for loading with product to be dispensed. Once this has been done, any rearwardly directed pressure applied to the product at the front of the base 10 will be transmitted against the "cocked" product pusher 11 at the rear of the base 10 and this will be sufficient to move the product pusher 11 slightly rearwardly to release the engagement between the hooks 17 and the apertures 13 in the base 10. The latching member 14 and hooks 17 thus moves upwardly under the action of the spring 16 and the pusher 11 is freed to move forwardly along the base 10 until it engages the rearmost face of the product to be dispensed (not shown). Removal of a product from the front of the shelf assembly will therefore result in the remainder of the array of product being moved forwardly under the action of the pusher 11 tensioned by the extended spring 15.

Figures 3-5 show in more detail the construction of a preferred product pusher assembly 9 in accordance with the present invention. As can be seen more clearly from Figure 4, the product pusher 11 comprises an L-shaped body having an upright portion 11a and a forwardly extending foot 11b. The underside of the foot portion 11b is formed with guide member 18 which is T-shaped in cross section to be received in the slot 12 in the base member as has already been

explained. The upright portion 11a is formed with four holes 20 therein with an L-shaped tab 21 partially overlying each hole 20. A nib 26 is formed between the two upper holes 20 and an abutment shelf 24 is formed between the two lower holes 20. A pair of spaced flanges 22 are provided beneath the abutment 24 and an aperture 23 is formed at the base of the pusher upright 11a intermediate the flanges 22. A pair of spaced apertures 27 are also provided at the base of the pusher portion 11a.

10

Referring now to Figure 5, there is illustrated the movable latching member 14 which is provided with an aperture 25 in its upper region to receive and engage with the nib 26. Its lower region includes a pair of spaced legs 14a, each leg having a hook 17 at its free end. Biasing means in the form of a spring member 16 are molded on the latching member 14, the biasing means 16 including the pair of resilient flexible legs 16a which engage with the top surface of the abutment shelf 24 formed on the upright portion 11a of the product pusher. It will be noted from Figure 5B that the legs 14a are not coplanar with the remainder of the movable latching member 14. This is done to provide some resilience for the pusher member 11 against which a pressure can be applied to release the engagement between a hook 17 and its respective hole 13 in the base 10.

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20
25

The latching member 14 is slidably fitted to the product
pusher 11 by fitting its lateral edges beneath the lugs 21.
The latching member 14 is then pushed downwardly towards the
guide member 18 until the nib 26 locates in the aperture 25
5 to retain the two parts together in an assembled condition
as shown in Figure 3A with the resilient legs 16a resting on
the abutment shelf 24. The locking member can now move
relative to the product pusher 11 by an amount
corresponding to the length of the aperture 25. In its
10 normal rest position illustrated in Figure 3A, bottom edge
25a of opening 25 is urged into engagement with the nib 26
by the partially compressed resilient legs 16a. In this
rest position, the hooks 17 are located above the bottom
surface of the foot 11b of the product pusher 11. It can be
15 seen from Figure 3A that the coiled spring 15 is loosely
housed between the two spaced flanges 22, the free end of
the spring passing out from the product pusher 11 through
the aperture 23 and anchored at 19 adjacent the front edge
of the base 10 (see Figure 2).

20

The operation of the illustrated device is as follows. When
a merchandiser wishes to load a shelf assembly, the product
pusher 11 is pushed from its rest position A until it
reaches position B adjacent the rear of the shelf (see
25 Figure 2). The user then depresses the slider 14 to engage
the hooks 17 at the bottom thereof in the holes 13 in the

base 10. On release of the rearwardly directed pressure on the pusher 11, the hooks 17 latchingly engage in the holes 13 to retain the slider in its "cocked" position B.

5 Products can now be placed on the base 10 until the shelf is fully replenished at which stage a slight rearward pressure is applied to the foremost product on the shelf. This causes the product pusher 11 to move slightly rearwardly which releases the hooks 17 from latching engagement with
10 the holes 13 under the action of the spring 16. On release of this rearward pressure, the pusher 11 moves forwardly into engagement with the rearmost product in the linear array on the shelf under the action of the spring 15 and the shelf is ready for use again, product being moved forwardly
15 by the pusher 11 each time the foremost product on the shelf is removed.

This pusher assembly of the invention is extremely convenient to use as it obviates the need for the user to
20 have to manually hold the pusher 11 at the rear of the shelf while loading. Instead, this can be done while the shelf is empty and then the pusher can be locked into its "cocked" position ready for loading and simply released from the front of the loaded shelf by applying a slight rearward
25 pressure to the foremost product on the shelf. This represents a considerable improvement over the prior art.

CLAIMS

1. An assembly for fitting to the shelf of a merchandising display stand to push products displayed thereon to the front of the shelf comprising a base or track in which a product pusher is slidably mounted so as to be movable along the base against the action of resilient biasing means, the product pusher and base also having cooperating latching means operable when activated to hold and retain the product pusher in position adjacent the rear of the base but releasable automatically when pressure is applied to the product pusher in a direction against the action of the resilient biasing means.

2. An assembly as claimed in claim 1 wherein the latching means comprises a hook member mounted on the pusher and engageable with a hole in the base, the hook member being normally biased into a rest position out of engagement with the base but movable against the biasing force into a latched position in engagement with the base, the arrangement being such that the latch disengages when a rearward pressure is applied to the product pusher.

3. An assembly as claimed in claim 1 or claim 2 wherein the latching member is slidably mounted on the pusher and is provided with spring means which act against a fixed stop

thereon.

4. An assembly as claimed in claim 3 wherein the spring means comprises at least one resilient finger which cooperates with the fixed stop on the pusher.

5. An assembly as claimed in claim 4 wherein the latching member is made of a plastics material and the or each resilient finger is molded integrally therewith.

10

6. An assembly as claimed in any of claims 2-5 wherein the latching member protrudes beyond the edge of the product pusher so that the latching member can be depressed relative to the product pusher to engage with the base and retain the product pusher adjacent the rear of the base.

7. An assembly as claimed in any preceding claim wherein the resilient biasing means comprises a coiled flat spring, the free end of which is attached to the base adjacent the front thereof, the coiled remainder of the spring being mounted on the rear face of the product pusher.

8. An assembly as claimed in any of claims 2-7 wherein the pusher is provided with two hook members which engage with respective holes in the base.

9. An assembly substantially as herein described with reference to the accompanying drawings.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 (the Search report)	Application number GB 9411656.3
Relevant Technical Fields (i) UK Cl (Ed.N) B84 (a GB, a L, a F) (ii) Int Cl (Ed.6) A47F 1/00, /04, /12 Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii) ONLINE:- WPI	Search Examiner R D CAVILL Date of completion of Search 2 FEBRUARY 1995 Documents considered relevant following a search in respect of Claims :- 1 TO 9

Categories of documents

X: Document indicating lack of novelty or of inventive step.	P: Document published on or after the declared priority date but before the filing date of the present application.
Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.	E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
A: Document indicating technological background and/or state of the art.	&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1088684 (LIBBERTON) see whole document note latch mech 32/31/30	1
X	US 5111942 (BERNARDIN) see Figures 15 and note latch type configuration	1

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